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Scientific Intelligence Report

**Construction of Launch Facilities at the
Kapustin Yar-Vladimirovka Missile Test Center**

OSI-SR/SC/63-8

20 November 1963



**CENTRAL INTELLIGENCE AGENCY
Office of Scientific Intelligence**

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Scientific Intelligence Report

**CONSTRUCTION OF LAUNCH FACILITIES
AT THE KAPUSTIN YAR-VLADIMIROVKA
MISSILE TEST CENTER**

NOTICE

The conclusions, judgments, and opinions contained in this finished intelligence report are based on extensive scientific intelligence research and represent the final and considered views of the Office of Scientific Intelligence.

OSI-SR/SC/63-8

20 November 1963

**CENTRAL INTELLIGENCE AGENCY
OFFICE OF SCIENTIFIC INTELLIGENCE**

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PREFACE

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Photographic coverage of the Kapustin Yar-Vladimirovka Missile Test Center for the period [REDACTED] has been studied and reviewed to determine the extent to which the rangehead has expanded and to indicate the significance of such expansion to the Soviet offensive weapons system capability. It should be noted, however, that the last comprehensive, good quality photographic coverage of the rangehead was in [REDACTED]. Subsequent coverage disclosed little change or was of such poor quality that progress could not be determined.

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Similarities between the Kapustin Yar launch facilities and the Tyuratam launch facilities are indicated. Also covered, but to a limited degree, are comparisons of Kapustin Yar launch facilities and deployed missile sites. The subject of chief concern in this report is the facilities associated with offensive missile systems, and hence it includes no discussion of the defensive surface-to-air missile facilities.

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The latest photography used is [REDACTED]. The cutoff date for [REDACTED] information used in the preparation of this report is [REDACTED].

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CONSTRUCTION OF LAUNCH FACILITIES AT THE KAPUSTIN YAR-VLADIMIROVKA MISSILE TEST CENTER

PROBLEM

To assess the significance of launch facilities at the
Kapustin Yar-Vladimirovka Missile Test Center, with
emphasis on new construction since [REDACTED]

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CONCLUSIONS

25X1D 1. Considerable expansion of facilities has
taken place at the Kapustin Yar-Vladimirovka
Missile Test Center [REDACTED]. The
new facilities provide supporting evidence of
the development and/or modification of sev-
eral high-priority advanced weapon systems
as follows: the development and improvement
of the 2,200-nautical-mile IRBM (SS-5) and
the 1,100-nautical-mile MRBM (SS-4); and
the development of at least one SRBM system
(Series 14) and a 300-nautical-mile naval
cruise missile system.

2. A total of 31 fixed launching facilities
had been constructed or started by [REDACTED].
Of those, 9 had been completed since 1959.
Of the 31 facilities, 13 appeared to be active,
11 apparently were complete but inactive, and
7 were still under construction.

25X1D 3. While 13 launch facilities appeared to
be active, only 9 surface-to-surface missile pro-
grams and one space program associated with
the Kapustin Yar Missile Test Range are
known to have been active in [REDACTED]. The

4. One of the two ramp-like structures
within Launch Complex A appeared to be com-
plete in [REDACTED] and the other was still

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[REDACTED]
suggests that they may be silo-type launchers.
Also, the availability of the northern structure
in [REDACTED] coincided with the advent of the Series
14 test program on the Kapustin Yar Missile
Test Range. The two flat pads at Launch
Complex A appeared to be in use [REDACTED]

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5. Launch Complex B, definitely identified
as a [REDACTED] showed no visible
change [REDACTED] ment, including
several rail launchers, suggests a capability
for launching all three surface-to-surface
cruise missile systems (150, 300, and 450
nautical miles) being tested on the Kapustin
Yar range. A ballistic missile launching ca-
pability at area 2B is suggested by two struc-
tures, one similar to a ship motion simulator
and the other resembling a G-class submarine
sail.

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6. Launch Complex C has been expanded
from 6 to 12 (possibly 14) launch points. Two

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new launch areas, 4C and 5C, probably became operational in [redacted] Launch area 4C represents prototype construction of hardened MRBM/IRBM launch sites. Each of its two launch areas contains two (possibly three) silo launchers and closely resembles launch sites being deployed in western USSR. While the launch sites at area 5C have not been associated with specific missiles, their similarity to deployed soft IRBM/MRBM sites in western USSR and the timing of their construction suggest that they are associated with the SS-5 and SS-4 missile systems and most likely will be used as training sites.

25X1D 7. The addition of a rail line to launch site 1C indicates that its mission probably has

8. Based upon limited evidence, launch site 2C appears to be at least one launch site for

the SS-5 missile. It is possible also that one of its pads is used for firing SS-4 missiles.

9. Photographic evidence indicates that launch area 3C may no longer be used for missile launching. Its present mission is undetermined.

1 [redacted] photography disclosed that two new launch sites have been completed at Launch Complex D traditionally suspected as the location of firings (Livework)* of the intercontinental surface-to-surface cruise vehicle Hotcross initiated in 1957. New support facilities present included a second runway over 13,000 feet long, an airborne missile loading complex, and a new missile fabrication building.

11. Launch Complexes E and C were both inactive in [redacted] While the purpose of E remains undetermined, Complex G, since at least 1959, has been used for firing short-range ballistic missiles.

* Early designation for Hotcross firings.

DISCUSSION

25X1D INTRODUCTION

As [redacted] there were at least 31 fixed launching facilities at the Kapustin Yar-Vladimirovka Missile Test Center (KYVMTC) for surface-to-surface missiles (see figures 1 and 2). Of these, 13 appeared to be active,** 11 appeared to be complete but inactive, while 7 were under construction (see figure 3).

25X1D At least 9 surface-to-surface missile (SSM) programs and one space program were active at the KYVMTC in [redacted] (see figures 4 and 5) as follows:

- Series 8 K11 75-nautical-mile SRBM
- Series 61 (SS-1b) 150-nautical-mile SRBM
- Series 14 150-nautical-mile SRBM
- Series 63 (SS-4) 1,100-nautical-mile MRBM
- Series 65 (SS-5) 2,200-nautical-mile IRBM

** "Active" launch areas are defined as those at which vehicles, equipment, and other signs of activity were observed at the time of photography, while those described as "inactive" were unoccupied.

- 150-nautical-mile short-range SSCM
- 300-nautical-mile short-range SSCM
- 450-nautical-mile short-range SSCM
- Luggage 2,000-nautical-mile SSCM
- Cosmos earth satellite

Determination of pad utilization and association of a particular system with a specific launch pad is difficult primarily because of the large number of facilities now present and the lack of good discriminators with which to identify systems with specific facilities. Considerations of possible uses are included in the following discussion of major Kapustin Yar launch facilities.

LAUNCH COMPLEX A

Complex A probably is the oldest SSM facility at Kapustin Yar, with the exception of the area used to launch German V-2's in 1947. Two pads approximately 125 feet square, present in [redacted] remained virtually un-

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changed through [] the launch area was modified by the construction of two, large, double-ramp structures, each 600 to 700 feet long and 30 feet high (see fig-

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[] northernmost of the two structures appeared to be complete in [] while the southern structure looked incomplete and inactive. Each previously had at its center, a hole 20 to 25 feet in diameter, which was not visible on the [] photography. While the ramp structures were in the early stages of construction, their flat upper surfaces were overrun by construction equipment. In [] the two original pads in Complex A were again in usable condition. The support area had been expanded slightly to handle the increased activity in this Complex. A road-served, drive-through building, 200 by 130 feet, has been completed [] and a smaller structure has been partially revetted.

Only one new flight test program appeared on the range during [] This was the Series 14, 150-nautical-mile SRBM. Its appearance in [] coincides well with the availability of the northern ramp launcher. The Series 14 is believed to be a submarine-launched missile and may have been flight tested from the ramp facility to simulate a submarine launch.

LAUNCH COMPLEX B

Launch Complex B has been considered to be a naval-associated facility for some time, and further analysis of [] photography has substantially confirmed this belief. No changes were noted on the []. At least two launch areas, 1B and 3B, of the Complex (see figure 7) are probably used for the firing of surface-to-surface cruise missiles. Areas 1B and 2B were operational in [] whereas 3B was added []

Launch Area 1B

Launch area 1B is the northernmost area of Complex B. Initially it had two pads, but the [] photography disclosed that addi-

tional concrete had merged the two into one large apron (see figure 8). Located on the north side of the apron were two identical ramp-type rail launchers, each 85 feet long, elevated to 15° and oriented downrange. Cylindrical objects about 40 feet long rested on the end of each launcher. Although the objects resembled missiles in some respects they could also have been integral parts of the launchers. At least three flight test programs were underway in [] which could have used these facilities. These were the 150-, 300-, and 450-nautical-mile cruise missiles.

Also on the apron but located on the south side near the center of the 200-foot-square launch pad is a cylindrical structure measuring 45 feet by 15 feet in diameter with its long axis oriented east and west. A crane stands adjacent to the structure. It is possible that this structure is a missile launcher, simulating a submarine. Further identification is not possible.

Launch Area 2B

In addition to a large square concrete pad (figure 9), two unidentified structures are present in this launch area—one located at the center of the pad and the other on the west side of the pad. The center structure has a square base approximately 40 feet on a side and is about [] Resting on this base is a bulbous object about 25 feet in diameter with a mast-like structure about [] in its center. This facility has been tentatively identified as a ship motion simulator. The structure at the west side of the pad resembles the sail of a G-class submarine and has similar dimensions as follows (in feet):

G-CLASS SUBMARINE SAIL

Beam of submarine at sail
Beam of sail at deck
Length of sail at deck
Height of sail
Distance from forward end to missile storage

SAIL-LIKE STRUCTURE AT AREA 2B

Overall width
Width of raised part
Length of raised part
Height of raised part
Length of tallest part of structure

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An unidentified cylindrical object [] 5 feet in diameter and 20 to 30 feet long was lying inside of the sail-like structure.

From the foregoing evidence it would appear that area 2B is the focal point in Complex B for experimental testing of naval ballistic missiles, possibly of a short-range category.

Launch Area 3B 25X1D

Constructed between [], launch area 3B consists of a large, rectangular, concrete hardstand, on which is situated, at the south end, a concrete ramp, [] feet long, and 25 feet high, oriented down-range (figure 10). At the north end of the hardstand is a rectangular pit 95 by 40 feet in size, with its longest axis oriented down range. Two tube-like members 55 feet long, [] apart were in the pit.

While neither of these facilities are firmly identified, their appearance and orientation suggest that they are launchers; the ramp probably for cruise missiles such as those seen on Soviet surface vessels and the tube-like structures for the probable P-5 150- to 300-nautical-mile missile believed to be fired from the E-class submarine.

25X1D LAUNCH COMPLEX C 25X1D

Complex C (figure 11) appears to be the focal point of the preponderance of ballistic missile activity on the KYMTR. [] and [] when 1C and 3C were the only two launch areas in the Complex, photographic data and [] indicated that firings of the SS-3 MRBM were probably being conducted from 3C and that research and development firings for the SS-4 MRBM were being conducted from 1C. Since that time, however, a rail line has been added to 1C connecting the launch area with a large possible missile assembly storage and checkout facility about 6 nautical miles to the northwest. The completion of area 2C in mid-1960 coincided with the initiation of test firings of the SS-5 IRBM area.

25X1D Two new launch areas, 4C and 5C, observed under construction in [] appeared

sufficiently defined to determine that 4C would have two launch sites with three silos each. Area 5C, also divided into two subareas, appeared to have two pads in each area still under construction. About one-half nautical mile northwest of area 4C, a new barracks area has been constructed. It consists of at least 17 buildings and is probably intended to house the personnel associated with 4C and 5C. Additional range instrumentation including two interferometers and control buildings lie to the north and west of area 1C.

Launch Area 1C

The most significant change to launch area 1C (figure 12) since [] the completion of the rail line connecting the launch pad to the main rail line leading back to what is believed to be a major assembly storage and checkout facility at least 6 nautical miles distant in a northwesterly direction. This improvement coupled with the addition of tracking and guidance instrumentation west and north of the pad, and new probable checkout facilities at the rear of the pad suggest a considerable change in mission for 1C, which was previously believed to be the site of early SS-4 firings. Although the large rail-served checkout facility and the instrumentation are not believed to be exclusively for the support of 1C, the rail line and location of the instrumentation are indicative of their close association with it.

During the [] time period, two significant programs appeared on the KYMTR, the SS-5 IRBM in [] the Cosmos earth satellite in []. Although the availability dates are unknown for the small checkout facility and the instrumentation, it is estimated that the rail line and the large checkout facility were available about [] respectively. If so, neither would have been ready for the initiation of the SS-5 program. Further, if it can be assumed that the elaborate checkout facility could be used just prior to its completion or that possibly it was not necessary for the ini-

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25X1D tiation of the Cosmos launchings, it would appear that the weight of evidence is in favor of the Cosmos space vehicle as the activity at 1C. Additionally, it is significant that the estimated completion of launch area 2C in [] coincides with the initiation of the SS-5 flight test program. Moreover, on []

25X1D an object identified as a possible missile or launcher/erector 85 feet long was observed on the pad at 1C in a near horizontal position. [] and other evidence con-

25X1D [] Cosmos and one though several SS-4 firings also occurred during this period, it is believed more likely that, if the object were a missile, it was associated with the Cosmos satellite launched []

Launch Area 2C

25X1D This area, seen in [] under construction, appeared complete in [] (figure 13). It has two large concrete pads 865 feet apart. The northernmost pad (2C-1) is 280 by 190 feet and the southernmost (2C-2) is 240 by 180 feet. Both pads have large vehicle stalls in the rear. Although vehicle activity was observed at both pads at the time of photography most of the activity was concentrated at 2C-2. An object (or objects) over 100 feet long lying horizontal at the center of the pad suggested that a missile was about to be erected. A possible fuel line extending to the center of the pad from a building or line of vehicles adjacent to the pad suggested a fueling operation.

25X1D Although 2C has not been firmly identified with any ballistic missile system, certain factors point to its association with the SS-5. These are: (i) similarities between launch area 2C at Kapustin Yar and Launch Complex C at Tyuratam, which has been firmly established as the launch site of the SS-7, a missile similar in design to the SS-5; and (ii) some similarity between 2C and the SS-5 launch sites seen in Cuba. Moreover, the estimated completion of 2C in [] coincides with the initiation of the SS-5 flight test program in []

Some tenuous evidence supports the possibility that 2C serves a launch site for both the SS-4 and the SS-5. The missiles are similar in design and use the same oxidizer (nitric acid) and certain support equipment, such as decontamination showers and water vehicles, could be used interchangeably. Also assuming the object seen on pad 2C-2 in []

25X1D was a missile, it is possible that it was an SS-4. Seven probable SS-4's were fired that month, and the first observed after [] occurred on [] One possible failure of an SS-5 occurred on [] but none were observed during the remainder of the month. Further support to the two system launch area concept has been found in the analysis of launch sites at 5C.

Launch Area 3C

25X1D In [] launch area 3C (figure 14) had three launch pads arranged in a line southwest to northeast. The center pad, 190 feet square, was connected to a hexagonal pad, approximately 190 by 160 feet on each side by 1,000 feet of hard-surfaced road. In []

25X1D it appeared that the hexagonal pads were no longer used for launching missiles but instead were occupied by unidentified structures. The structure on the southwest pad measured 110 by 20 feet and on the northeast pad, 75 by 50 feet. At the center of the central pad stood a structure identified as a 140-foot-high tower. No electronic gear could be identified within the area. Identification of this launch area with any missile system is not presently possible.

Launch Area 4C

25X1D Construction activity in 4C (figure 15) was initiated about [] it could not be identified until [] the mid-stage of development. [] was probably completed early [] Thus the construction required was about 20 months. The area consists of two sites, 4C-1 and 4C-2 (figure 16), in a north-south alignment, approximately 2,750 feet apart. The sites bear a distinct resemblance to hardened MRBM/IRBM sites deployed in western USSR (figure 17).

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Launch site 4C-1—The northern launch facility designated site 4C-1 (figure 16) consists of three silos and a possible bunker arranged in a rectangular pattern. Each silo represented by an approximately 20-foot-diameter circular hole has a rail-supported probable concrete sliding cover 45 feet on a side and [REDACTED]

Observation of construction in early stages indicated that the two northern-most holes were probably missile launch silos while the third silo, which apparently was more shallow, was for another purpose, perhaps access by personnel to the control bunker. The control bunker, 150 by 75 feet, sits in the center of the launch facility, is earth mounded and surrounded by a loop road 30 feet wide with a 100-foot turning radius. This road connects with the silos and the main road approaching the site. To the left of the main road and opposite the access or portal silo is an unidentified earthen mound or structure. Additional structures associated with the facility are a 60-foot-square building just north of the two launch silos and a depressed ramp adjacent to an earthen mound located further north and connected by a 240-foot-long cable or pipeline scar.

25X1D Attempts to identify this site firmly with a missile system so far have been unsuccessful. However, on [REDACTED] after a standdown

25X1D of three months, night testing of the SS-5 missile was resumed on the KYMTR. In the

25X1D [REDACTED] was noted that the customary 76 mcs/48 ch telemetry system monitored new booster parameters suggesting changes had been made in the missile. Two possibly related tests followed during [REDACTED]

5X1D Three additional tests were conducted [REDACTED] 2 of which displayed 136 mcs/20 ch telemetry normally associated with the re-entry vehicle and are believed to have monitored in this case the effects of vibration on the vehicle. Other evidence indicating high interest in these tests was an increase in the number of active range communication groups and possible VIP flights into the KYMTR.

5X1D The timing of the above tests coincides well with the estimated availability date of the 4C-1 site in early [REDACTED] Coupled with the foregoing evidence, it would appear possible

that the [REDACTED] were the first to be conducted from the prototype silos and that the instrumentation might have been intended to monitor the increased vibration effects on the missile imposed by the new launch environment.

Launch site 4C-2—Launch site 4C-2 (figure 16) is almost a mirror image of 4C-1, although some differences are noticeable. For instance, no evidence of construction appears where the unidentified structure or mounding was seen at one corner of the rectangle at 4C-1. A building 70 by 50 feet is located just south of the facility, possibly designed to perform the same function as the one at the north of 4C-1, but oriented differently. A possible cable extends south to an unidentified structure from the southeast silo. Singularly different from 4C-1 is the 45- by 105-foot possible checkout building and apron located about 400 feet north of the launch area. Two mounds are also seen in the southernmost part, 200 feet from the launch area. No determination has been made regarding the missile system to be fired from 4C-2; it is possible that it is either for the SS-4 or a second facility for the SS-5.

Launch Area 5C

The southernmost launch area of Complex C (figure 18) designated 5C consists of two launch areas with two pads each. The northern facility was at mid-stage of construction [REDACTED] while the southern area was almost complete. Construction similarities of 5C-1 and soft deployed IRBM sites in western USSR and those seen at Guanajay and Remedios in Cuba suggest that its intended purpose is IRBM training. Similarly, 5C-2 bears a resemblance to soft deployed MRBM sites and may also be for training.

LAUNCH COMPLEX D

Since [REDACTED] Complex D has been regarded as the launch facility for long-range surface-to-surface cruise vehicles. In [REDACTED] the facility consisted of four launch sites (see figure 19). Two sites, 1D and 3D (figures 20 and 22), were probably complete and opera-

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25X1D tional, while 2D and 4D (figures 21 and 23) appeared to be inactive and possibly abandoned. Two launch points and a possible third have been identified in site 1D, and one launch point exists in each of the other sites. To date, there have been insufficient data to permit association of any of the four cruise missile programs active on the range with specific launch sites. It is likely, however, that firings, which started in [] of a surface-to-surface cruise vehicle or intercontinental range occurred at launch site 1D. This was the only site in Complex D sufficiently complete to accommodate this flight test program at the time of its initiation.

LAUNCH COMPLEX E

25X1D There were no changes or signs of activity in Complex E between its observation in mid-[] The Complex consists of one large, square concrete pad, 230 feet on a side; a control bunker; and several vehicle revetments (see figure 24). The present state of knowledge precludes any determination of the missiles (if any) that may have been fired from this location.

LAUNCH COMPLEX G

25X1D If [] Complex G was a troop-training site for short-range ballistic missiles (see figure 25). It appeared inactive in []
25X1D It consists of a launch area with two pads, 800 feet apart, and a large missile storage and handling area. These pads were under construction in []
25X1D Three field positions (one occupied in [] were inactive. The large motor pool and the equipment park associated with this complex in []
25X1D have been vacated since []

OTHER AREAS AT KAPUSTIN YAR-VLADIMIROVKA MISSILE TEST CENTER

At least two areas located in the SSM portion of the rangehead cannot be associated directly with any specific launch complex. One area (figure 26) is a rail-served storage and checkout point along the road to Complexes A, B, E, and C, and about equidistant

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from each. It was under construction in [] and appeared to have been recently completed when observed in [] The area contains three road-served buildings, all of the drive-through type. The presence of two additional rail spurs in the area indicates that additional structures are intended. The facilities of the area probably serve at least a missile assembly and storage function for Complex C.

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The second area, evidently for support of troops, is between Launch Complexes A and E. Extensive scarring highlights this area, which consists of 20 permanent buildings, 160 tent bases, and about 150 pieces of equipment, at least some of which may be vehicles. Although the proximity of the area suggests its main support is to personnel firing at Complexes A and B, it may also support Complex E.

SIMILARITY OF FACILITIES AT KAPUSTIN YAR AND TYURATAM

An increasing number of similarities in facilities at the Kapustin Yar-Vladimirovka and Tyuratam Missile Test Centers continues to be observed. While no special significance is so far attached to these similarities, it seems desirable to examine them.

Similar electronic facilities have been noted northwest of Kapustin Yar Launch Complex C, possibly used for the Cosmos space vehicle launchings, and northwest of Tyuratam Launch Complex C, which probably has been used exclusively for SS-7 ICBM firings. These facilities are within a square, fenced area, with two 2,200-foot-long intersecting ground scars oriented in north-south and east-west directions. There are objects, possibly radar domes, at the ends of each ground scar. The lack of similar facilities at operational deployment sites of the SS-7 tends to favor tracking as the likely purpose for these sites at the two ranges. However, the possibility of their serving a guidance function cannot be completely ruled out, particularly inasmuch as individual radar domes seen on some of the operational deployment sites for the SS-7 at Kostroma are believed to be for guidance.

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The typical interferometers employed extensively in Soviet missile programs are present at three locations at the Kapustin Yar rangehead and one at the Tyuratam rangehead.

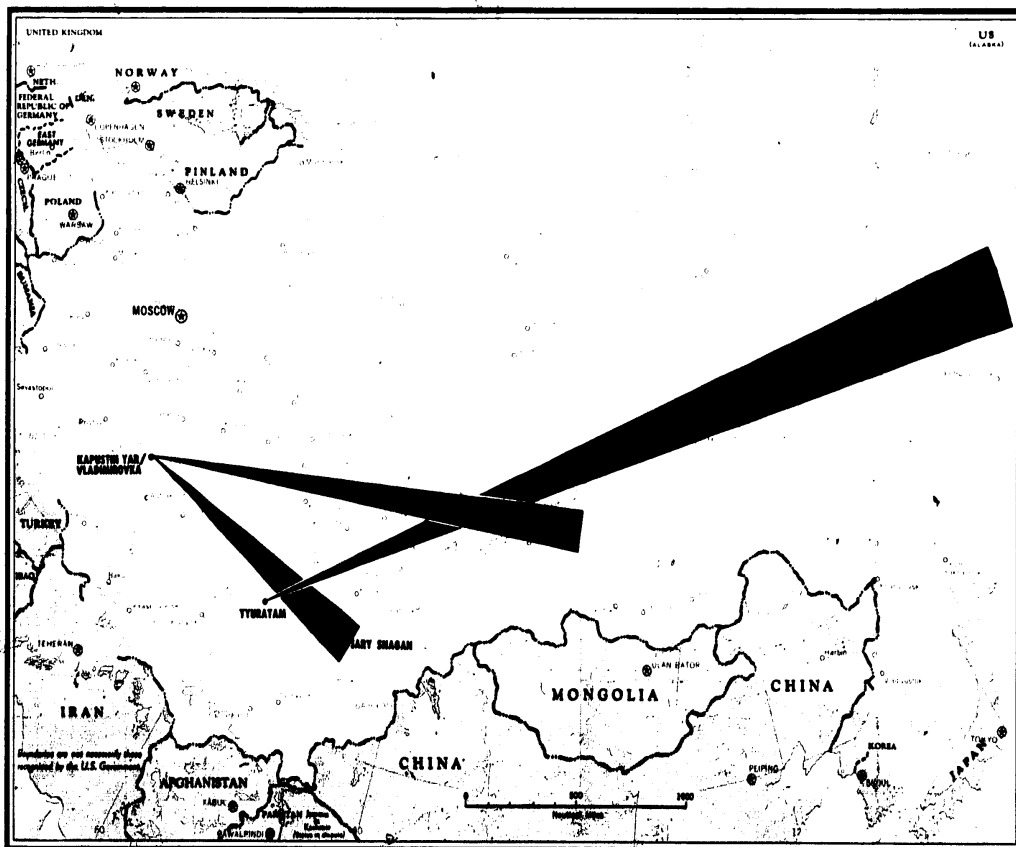
The pairing of SAM sites at both the Kapustin Yar and Tyuratam rangeheads indicates concern at each range for overhead security. Kapustin Yar does not present a direct missile threat to the United States as does Tyuratam. However, both are recognized by the USSR as high-priority intelligence targets for the United States.

The missile assembly and checkout building 2 at Tyuratam Launch Complex A, used for space launchings and some SS-6 and possibly SS-8 launchings, is similar to the missile assembly and checkout building associated with the cruise vehicle Complex D at Kapustin Yar.

The 2C launch pads at Kapustin Yar, which are believed to be associated with the SS-5 IRBM, have been provided with protected stalls for mobile ground support equipment. These are similar to stalls at Tyuratam Launch Complex C, from which the SS-7 ICBM has been fired, and to stalls at the operational deployment sites of the SS-7.

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Figure 1.
Soviet Missile Test Ranges

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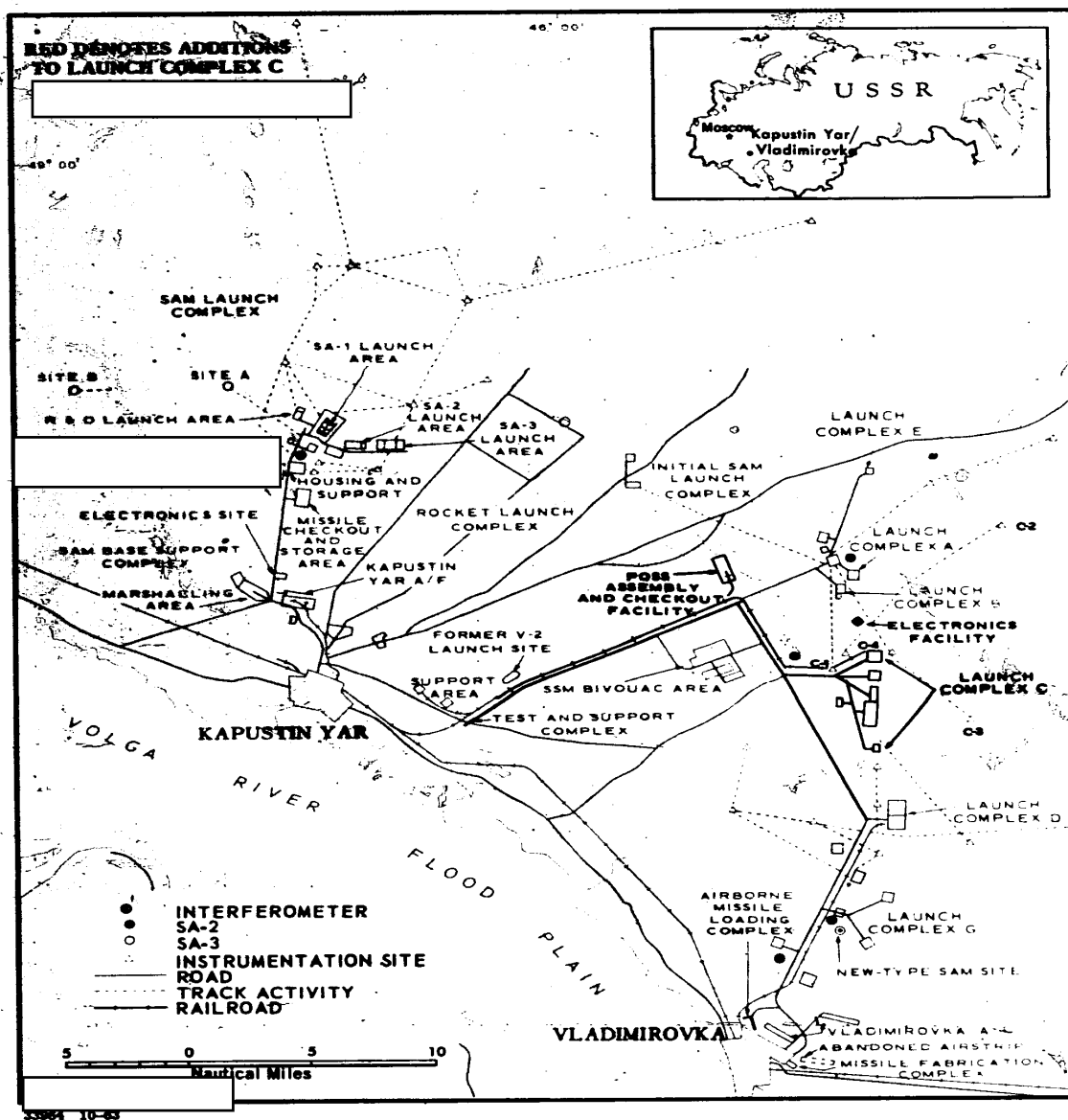


Figure 2.
Kapustin Yar-Vladimirovka Missile Test Center

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	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962
COMPLEX A										
2 Pads										*
2 Ramps									1 Ramp Inactive	*
COMPLEX B										
6 Launch Points (Naval)										
COMPLEX C										
1-C 1 Pad										
2-C 2 Pads										
3-C 1 Pad - 2 Dumbbells										
4-C 4-6 Sites										
5-C 4 Pads										
COMPLEX D										
1-D 3 Launch Points										*
2-D 1 Launch Point										*
3-D 1 Launch Point										*
4-D 1 Launch Point										*
COMPLEX E										
1 Pad										*
COMPLEX G										
1-G 2 Pads										*
2-G 3 Field Sites										*

TOTAL: 31 Launchers
 13 Active Pads
 11 Inactive Pads
 7 Incomplete

COMPLETE
 UNDER CONSTRUCTION
 * INACTIVE
 M MISSION

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Figure 8.

Kapselin Yar-Vladimirovka Rangehead Construction Schedule

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RANGE NM	1954	1955	1956	1957	1958	1959	1960	1961	1962
75			SERIES 11 (8 K 11)						
150					SERIES 81 SQUAD (SS 1b)				
1020					SERIES 43 SQUAD (SS-4)				
2200								SERIES 14	

Approximate Initial Operational Capability (IOC)

Figure 4.

Active Ballistic Missile Test Programs at the Kapustin Yar-Vladimirskaya Missile Test Center

TOP SECRET

SYSTEM	1957	1958	1959	1960	1961	1962
P - 5 130 NM						
P - 5 300 NM						
450 NM						
LUGGAGE 1450 NM						

20007 31-03

■ . . . Approximate Initial Operational Capability (IOC)

Figure 5.

Active Aerodynamic Surface-to-Surface Cruise Missile Firing Programs at the Kapustin Yar-Vladimirovka Missile Test Center

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TOP SECRET

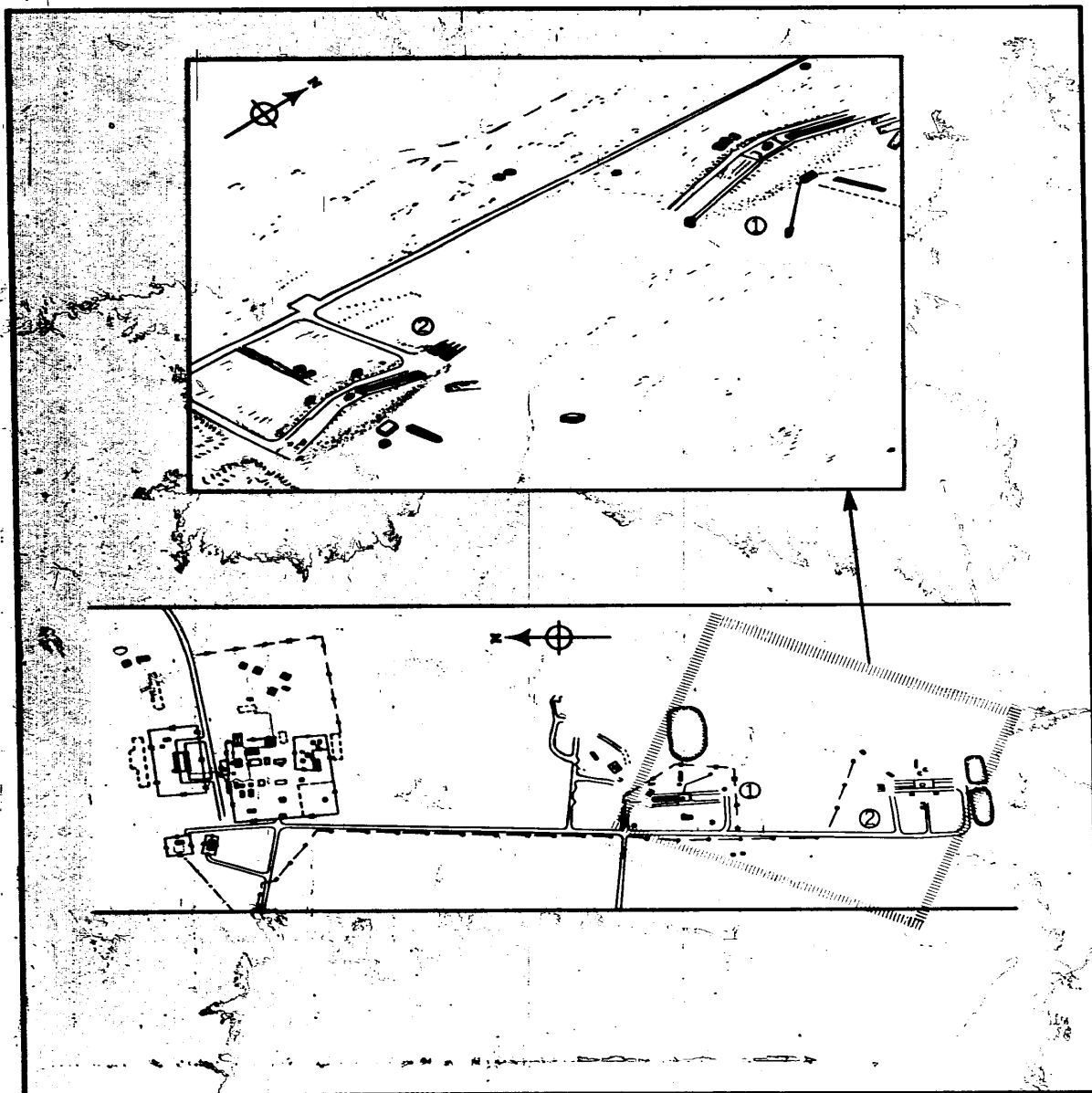


Figure 6.

Ramp-Type Structures at Launch Complex A

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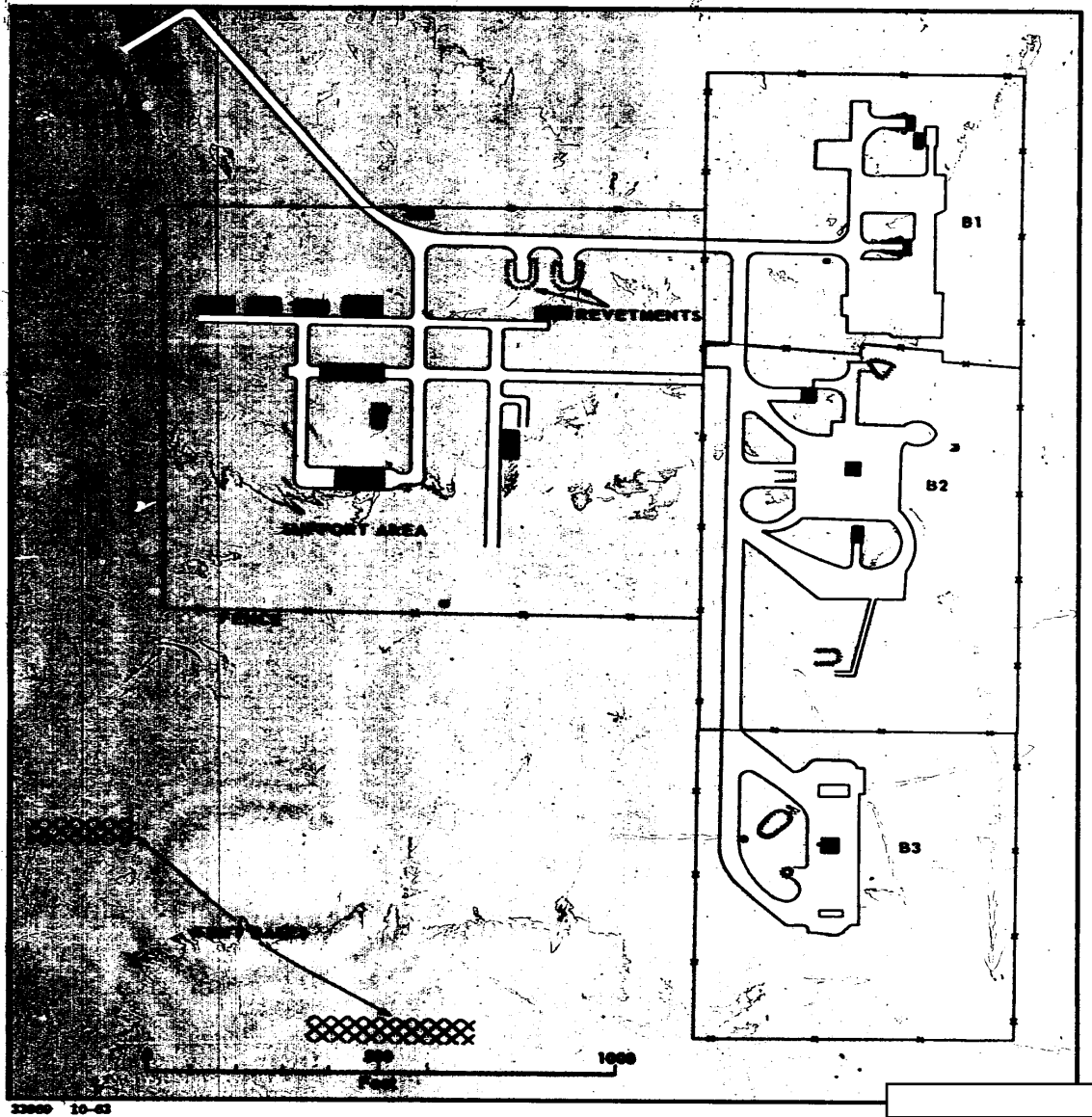
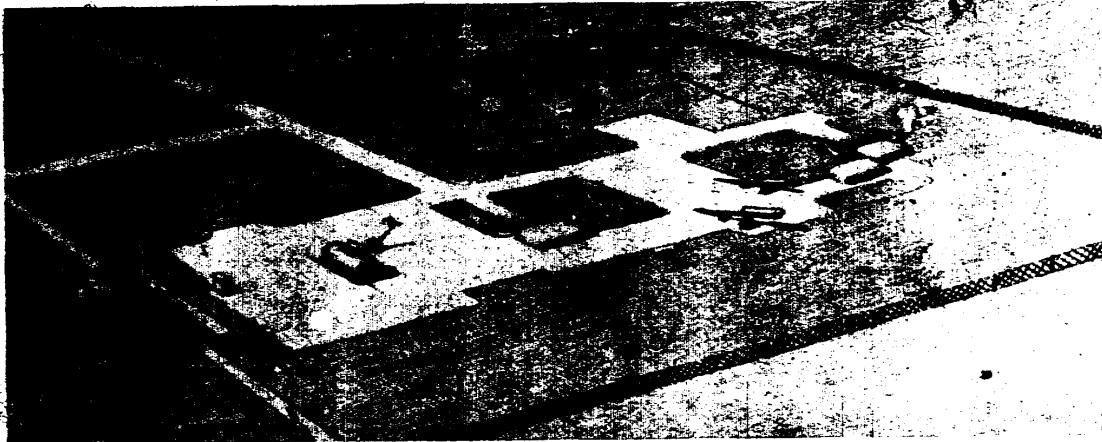


Figure 7.
Launch Complex B

25X1C

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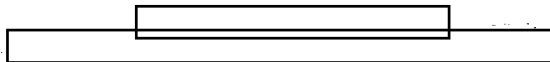


25X1C 10-42

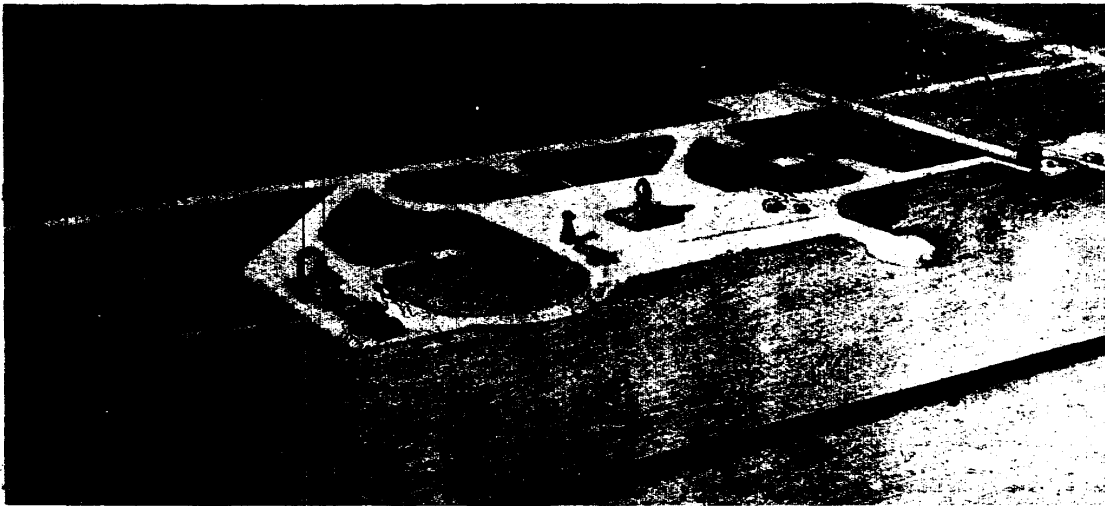
Figure 8.
Launch Area 1B

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25X1C.



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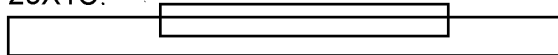


33971 10-63

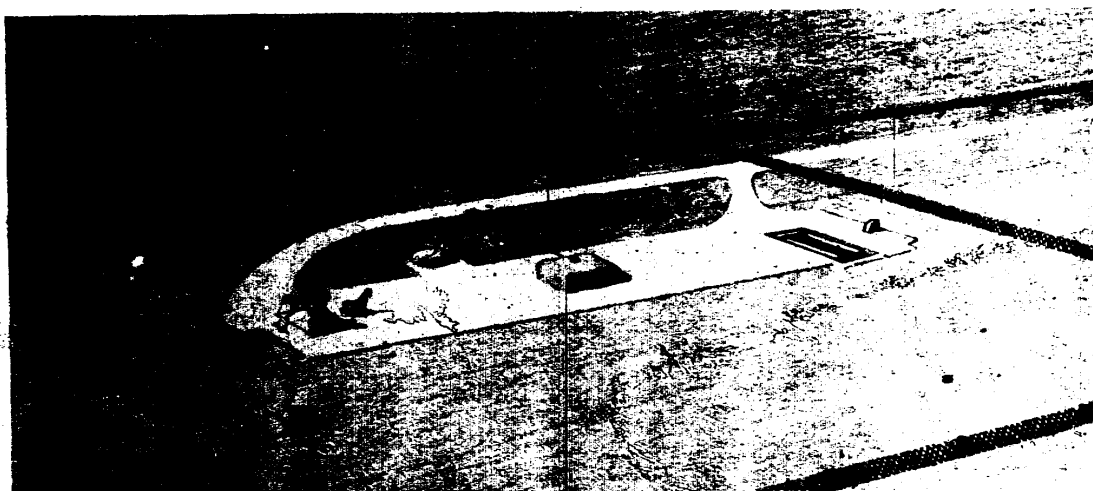
Figure 9.
Launch Area 2B

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25X1C.



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Figure 10.
Launch Area 3B

25X1C

SECRET



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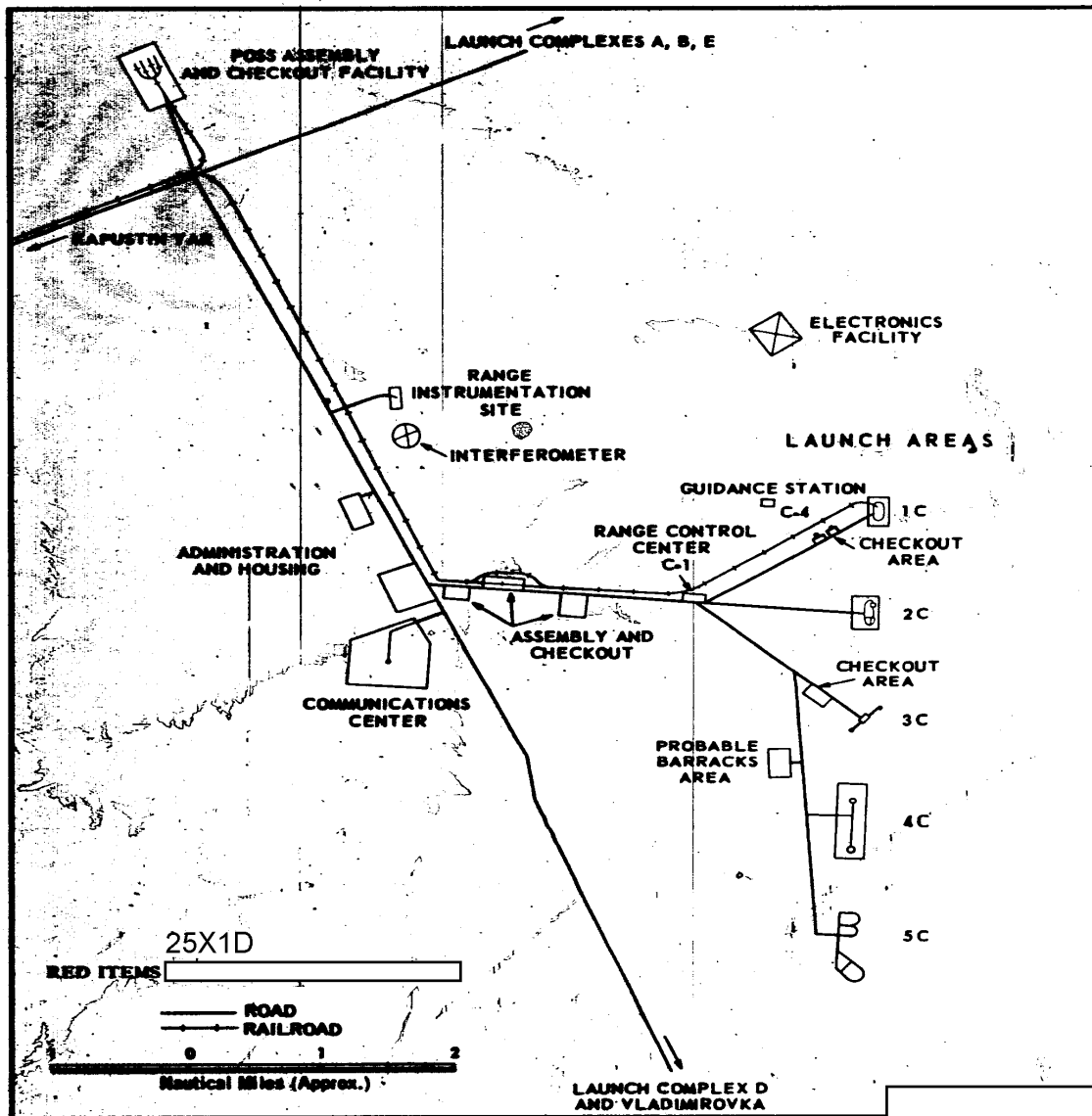
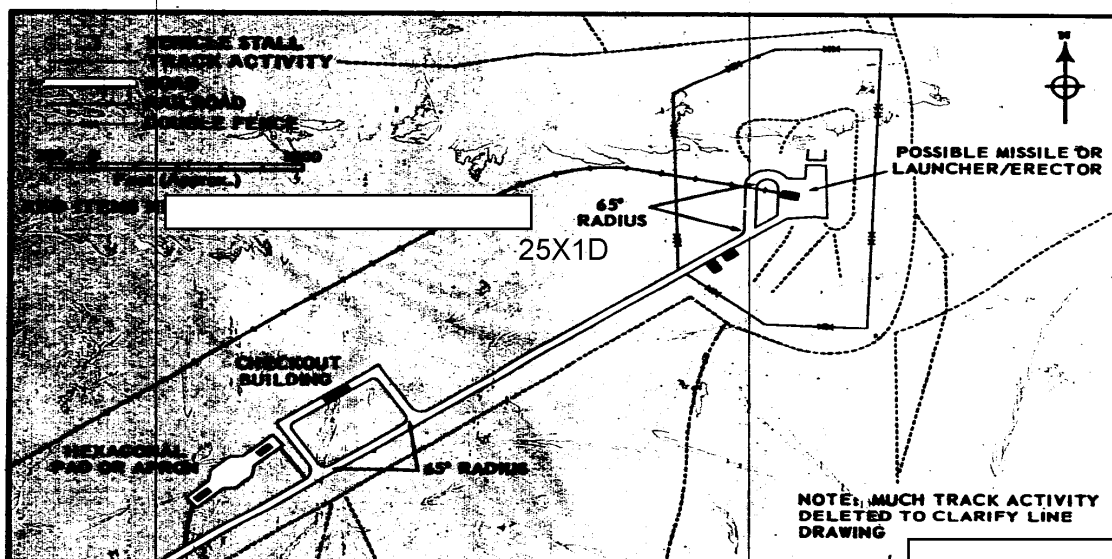
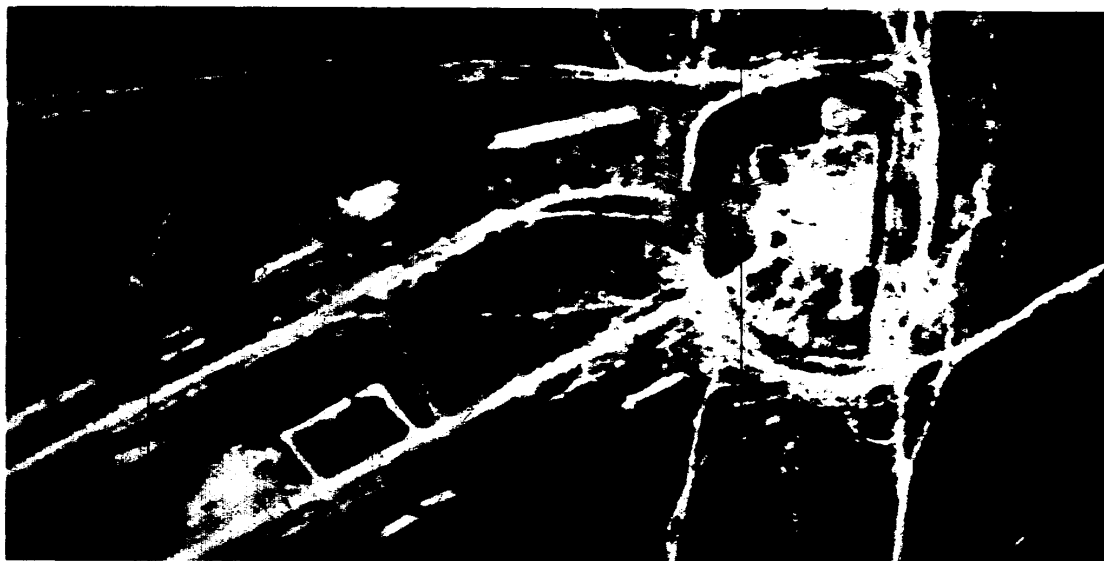


Figure II.
Launch Complex C

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Figure 12.
Launch Area IC

TOP SECRET

TOP SECRET

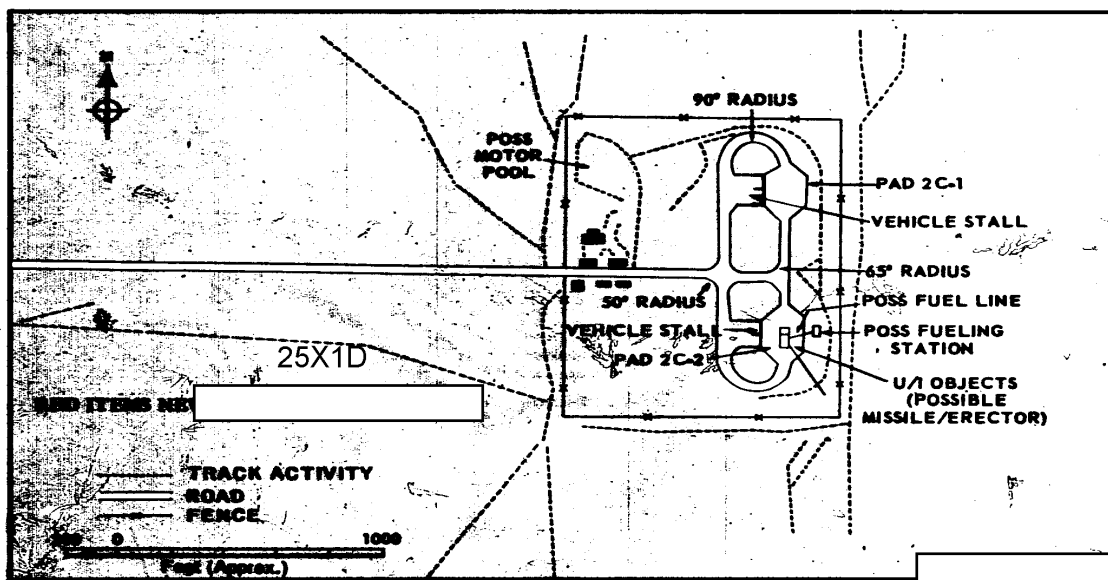
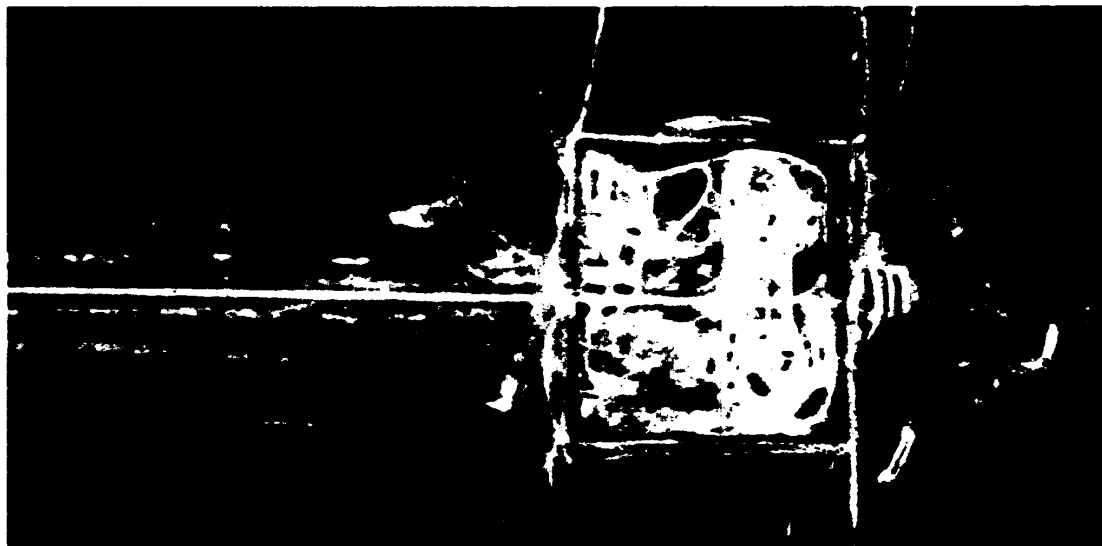


Figure 13.
Launch Area 2C

TOP SECRET

TOP SECRET

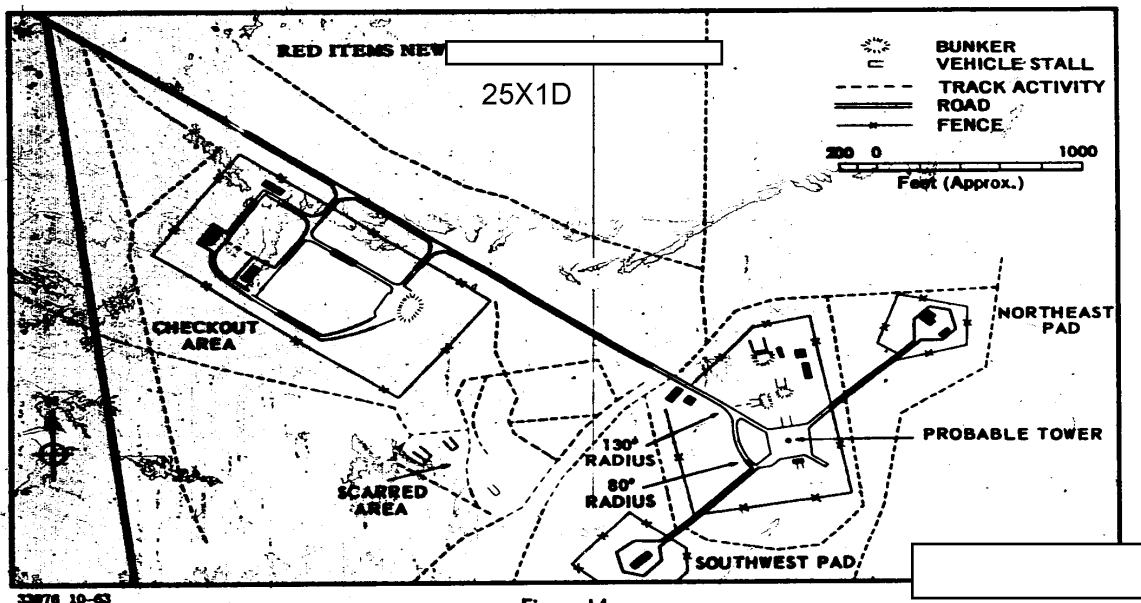
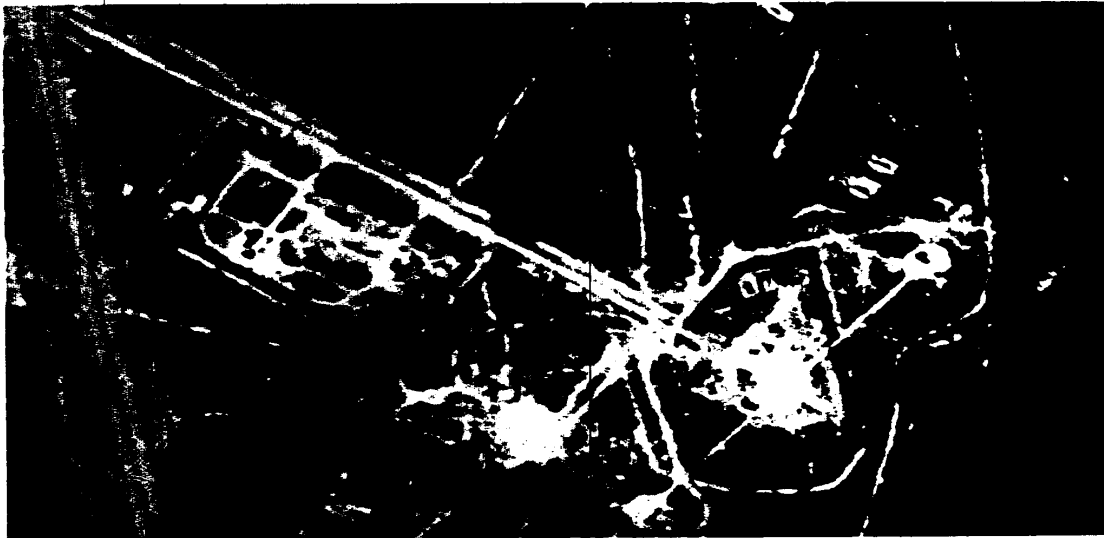
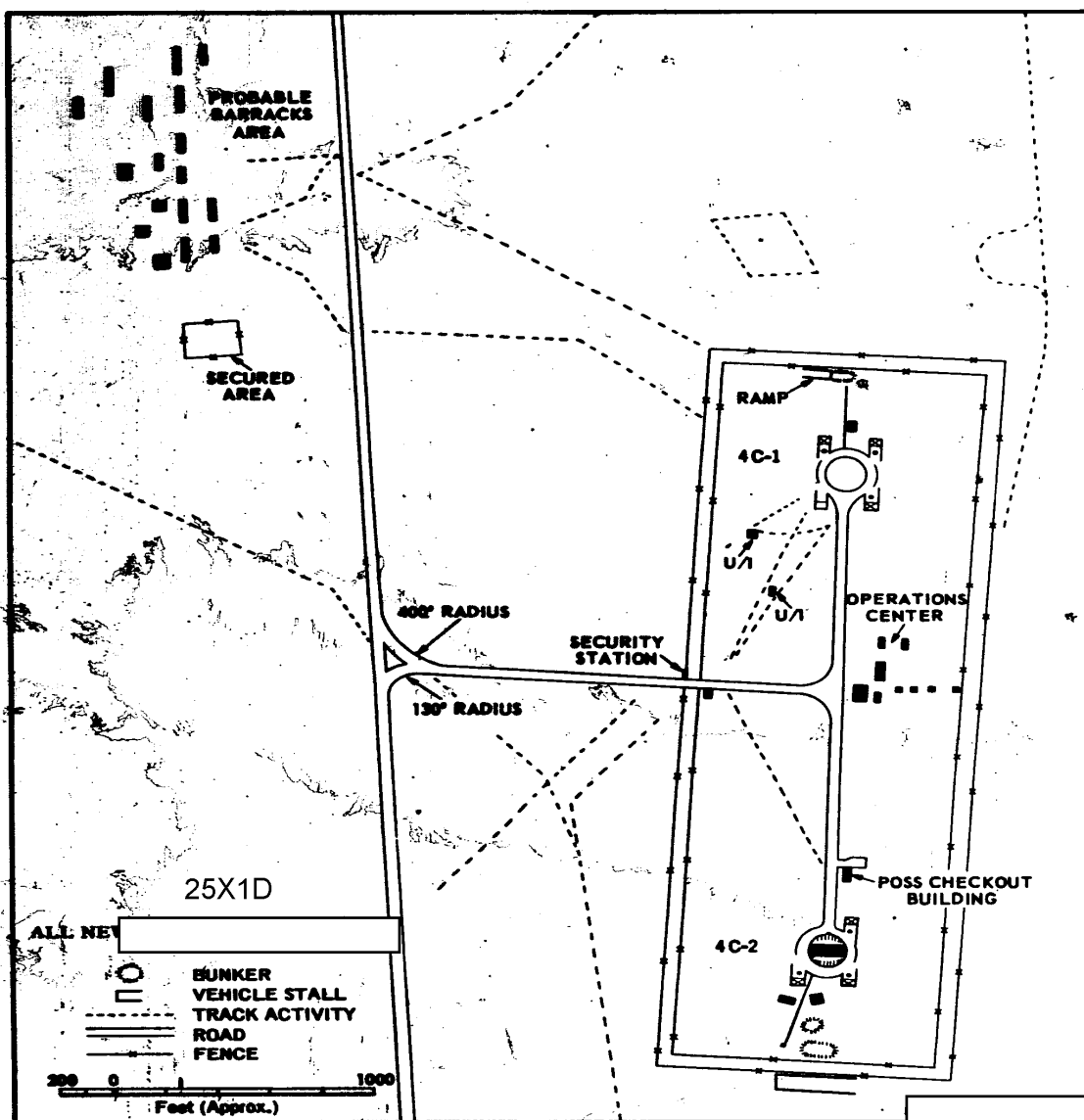


Figure 14.
Launch Area 3C

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Figure 15.
Launch Area 4C

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TOP SECRET

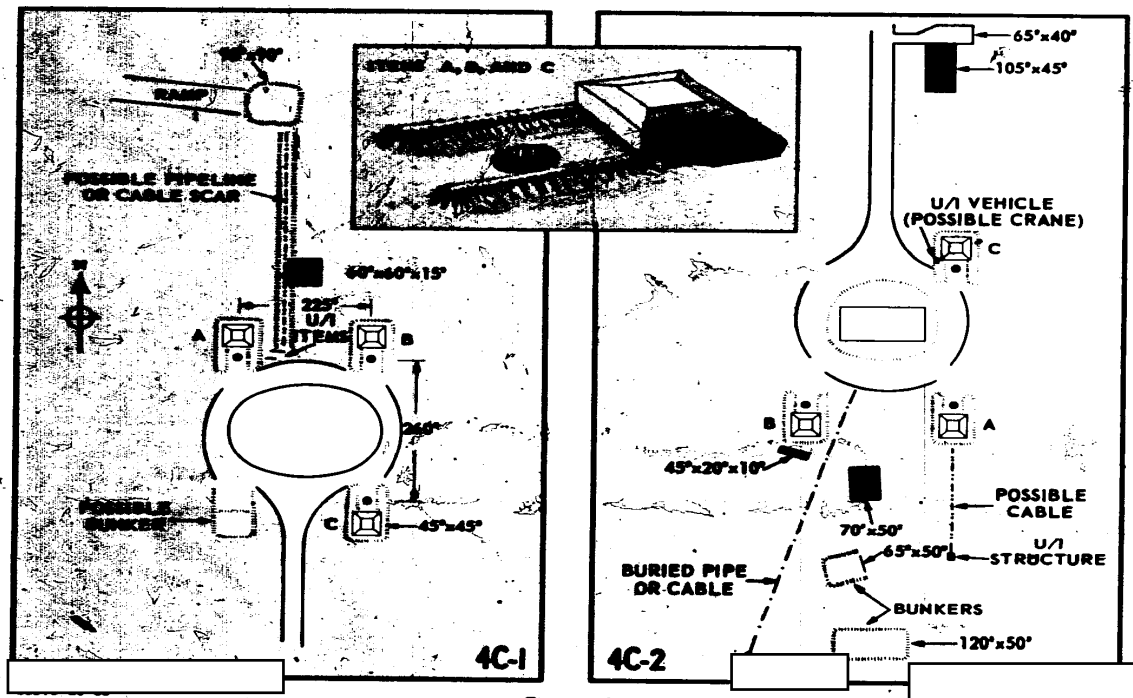


Figure 16.
Launch Sites 4C-1 and 4C-2

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TOP SECRET

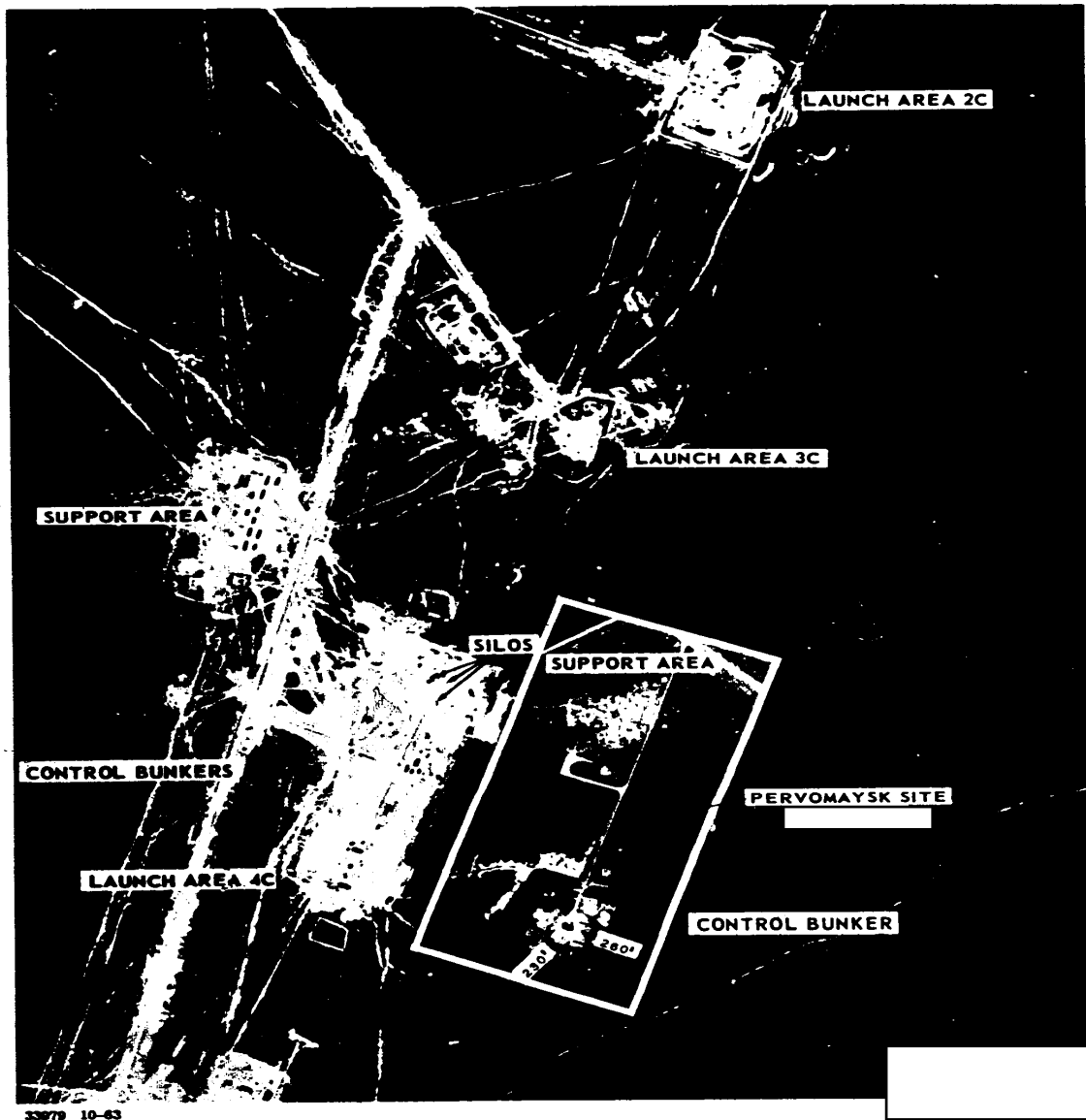


Figure 17.
Launch Area 4C

TOP SECRET

TOP SECRET

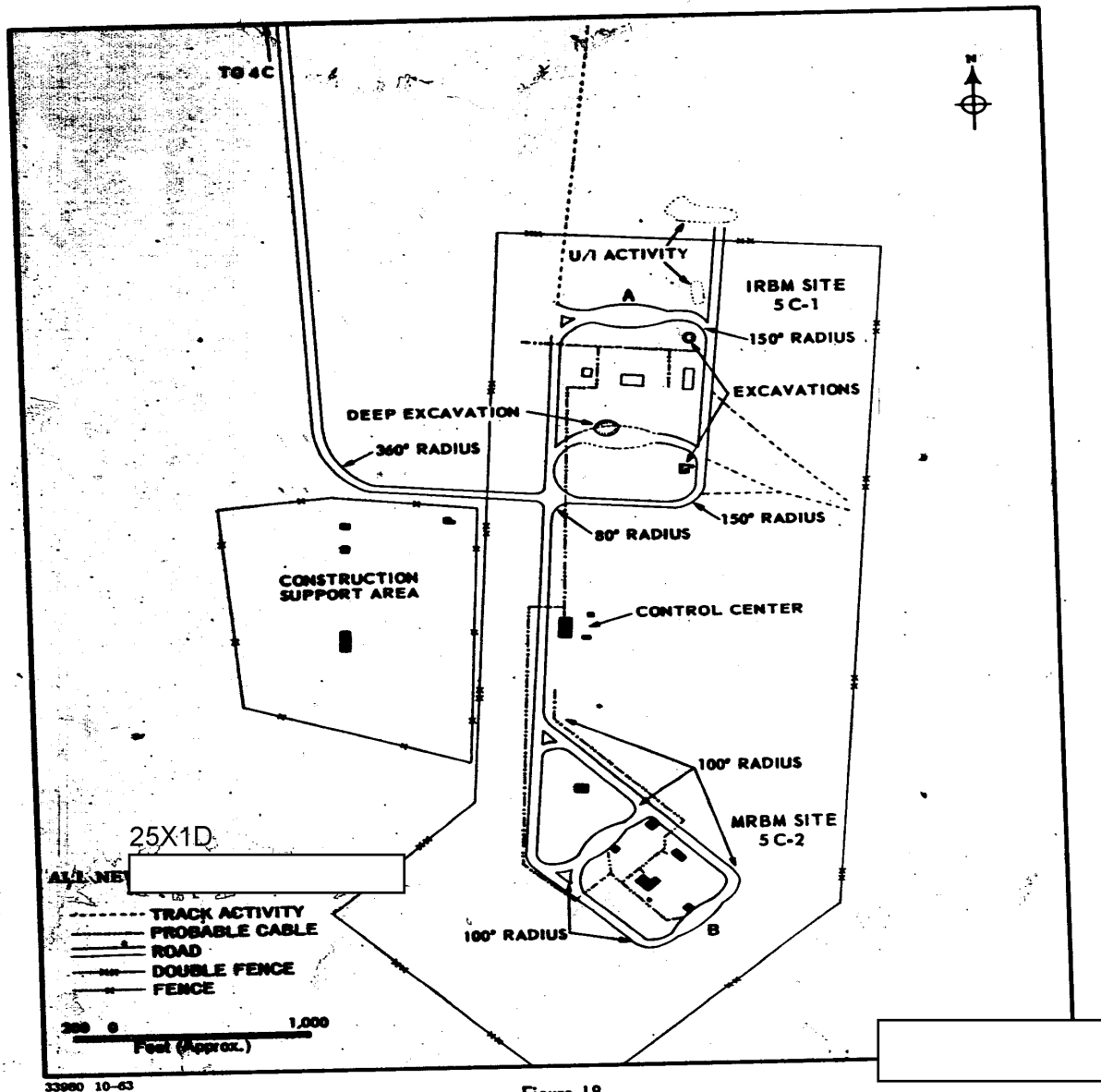


Figure 18.
Launch Area 5C

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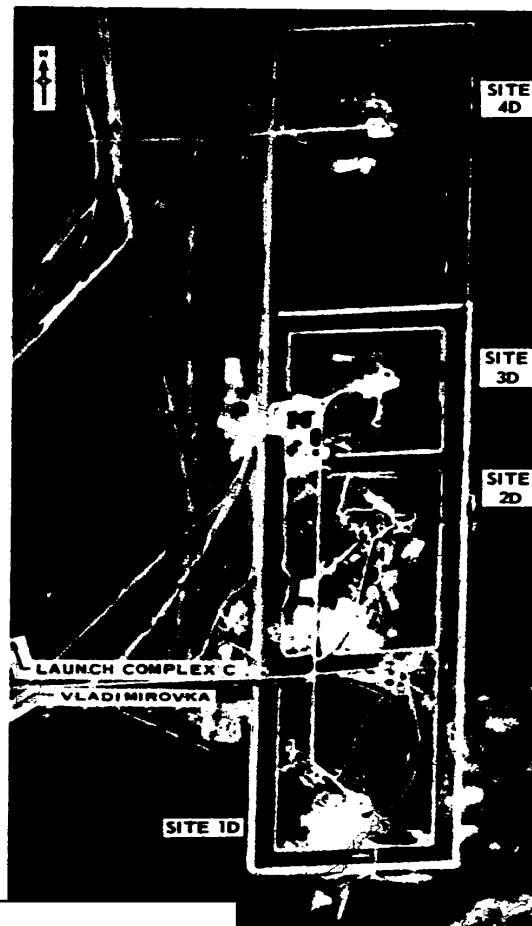


Figure 19.
Launch Complex D

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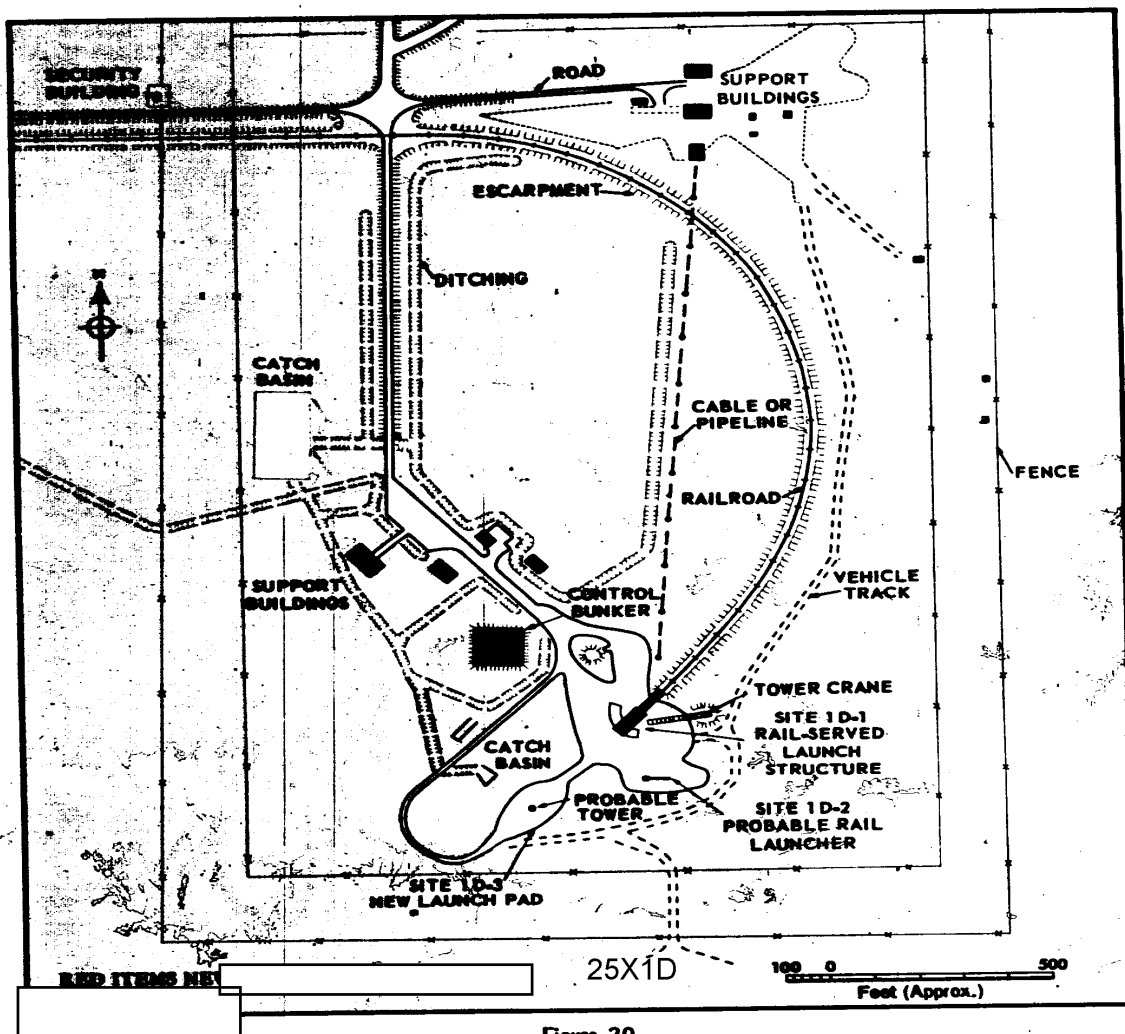
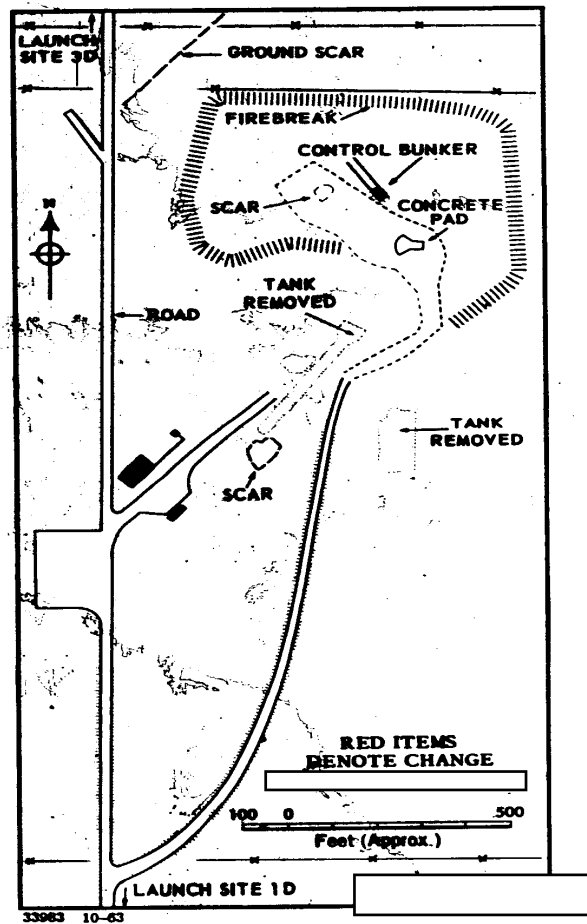


Figure 20.
Launch Site ID

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25X1D

Figure 21.
Launch Site 2D

TOP SECRET

TOP SECRET

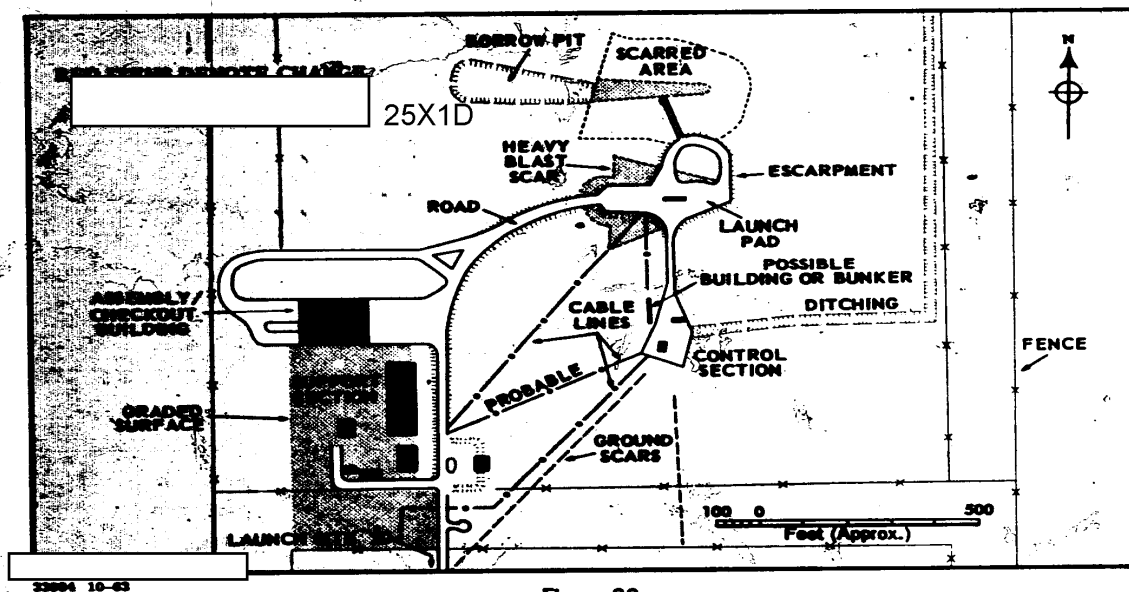
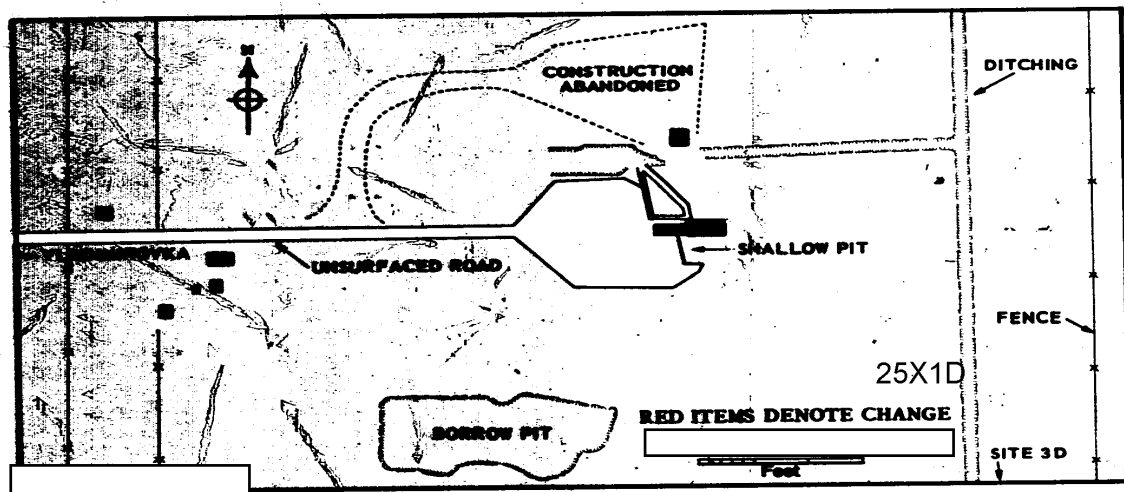


Figure 22.
Launch Site 3D

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Figure 23.
Launch Site 4D

TOP SECRET

SECRET

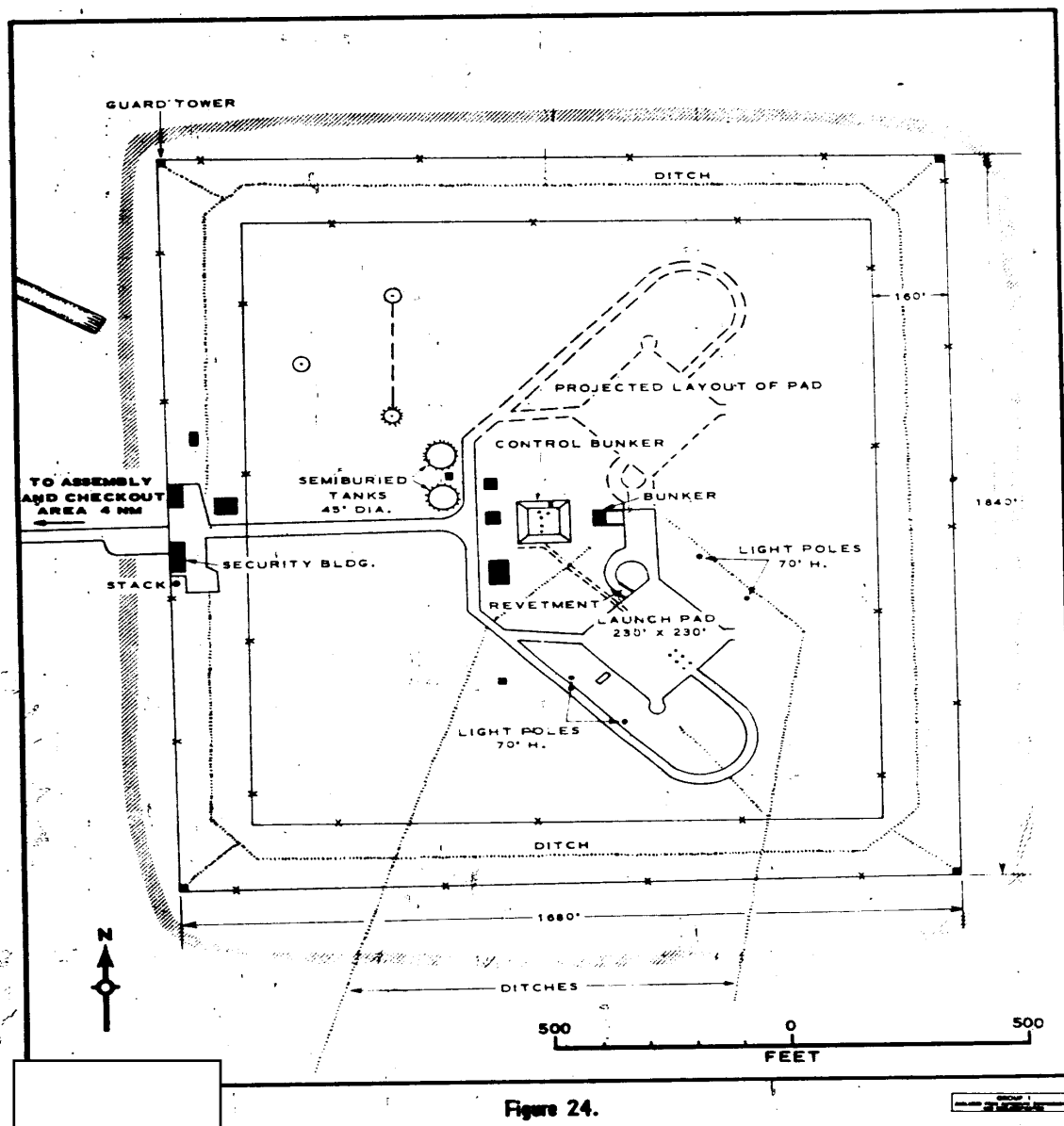


Figure 24.
Launch Complex E

25X10

SECRET

SECRET

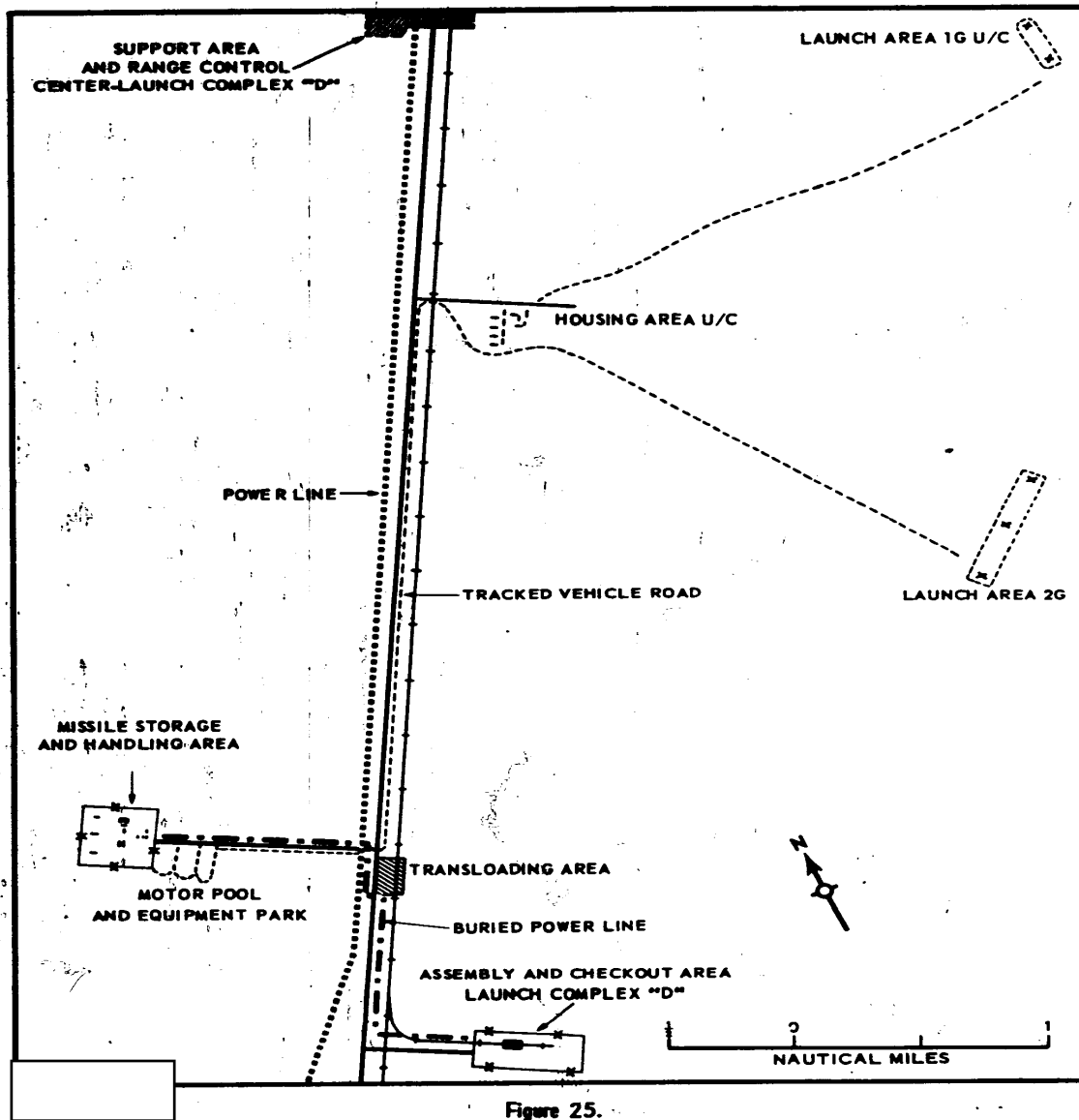


Figure 25.

Troop Training Launch Complex G

25X1C

SECRET

TOP SECRET

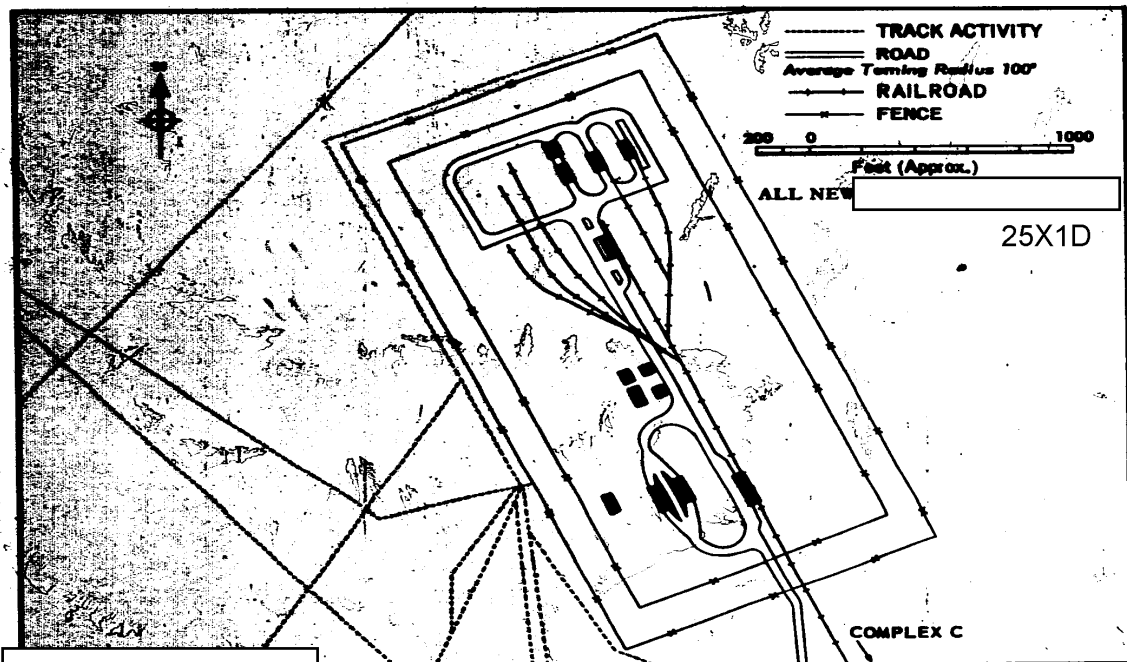


Figure 26.
Possible Assembly and Checkout Facility

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